FIG. 1

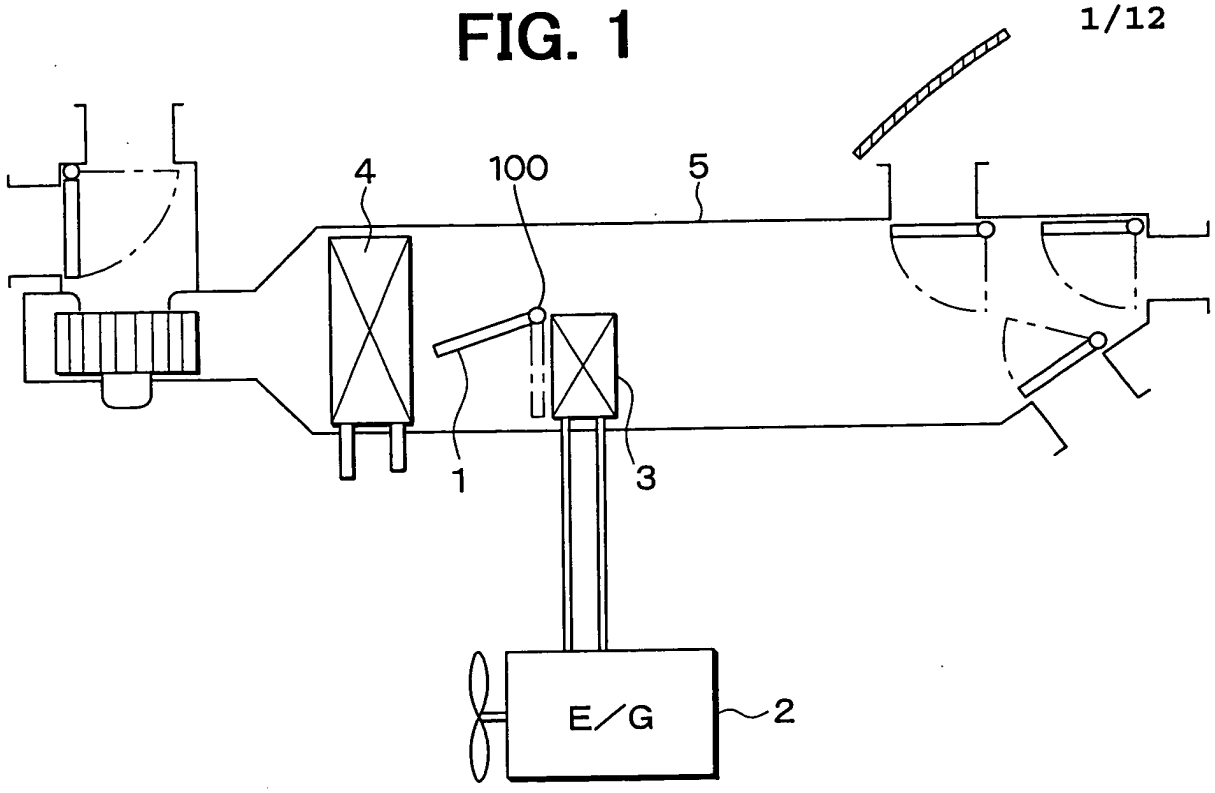

4
100
5
1
3
E/G
2

FIG. 2

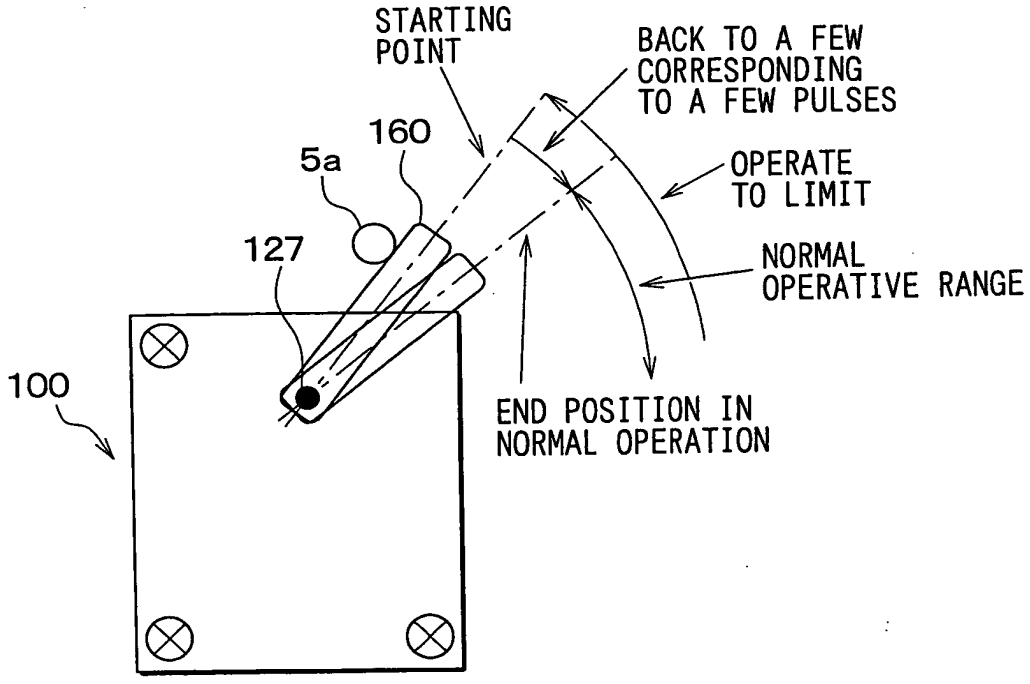

STARTING POINT
BACK TO A FEW CORRESPONDING TO A FEW PULSES
160
5a
OPERATE TO LIMIT
127
NORMAL OPERATIVE RANGE
100
END POSITION IN NORMAL OPERATION

FIG. 3

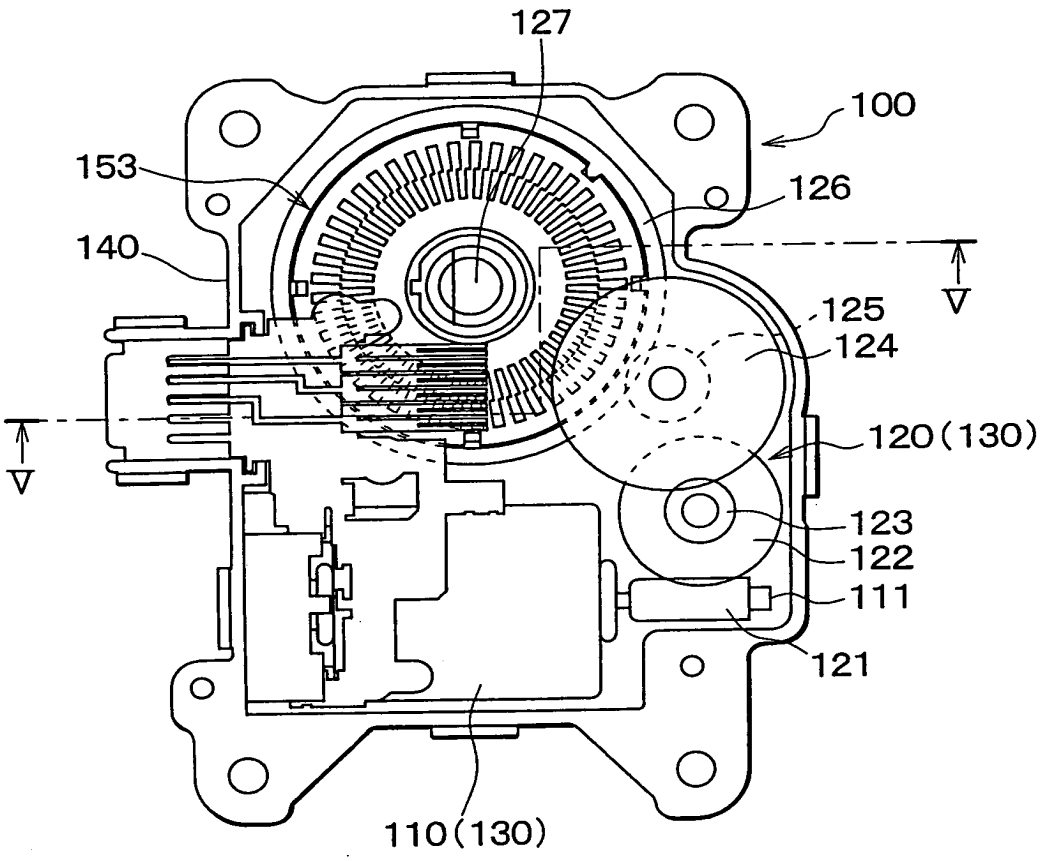


FIG. 4A

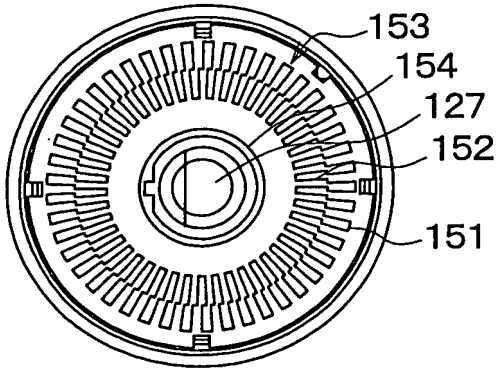


FIG. 4B

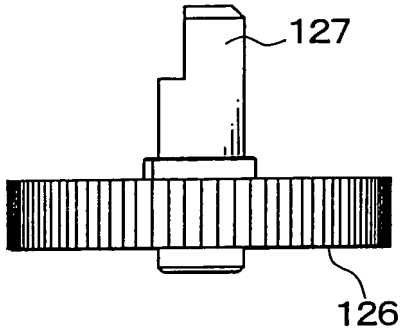
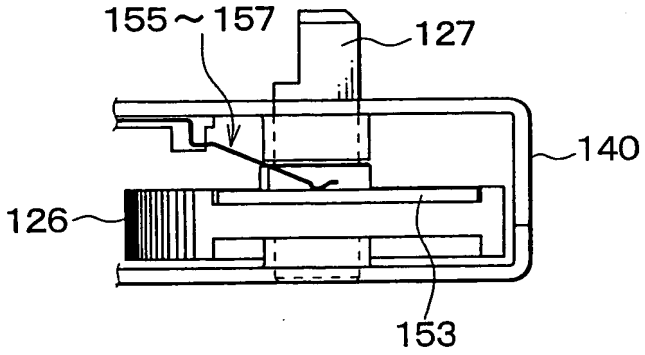


FIG. 5



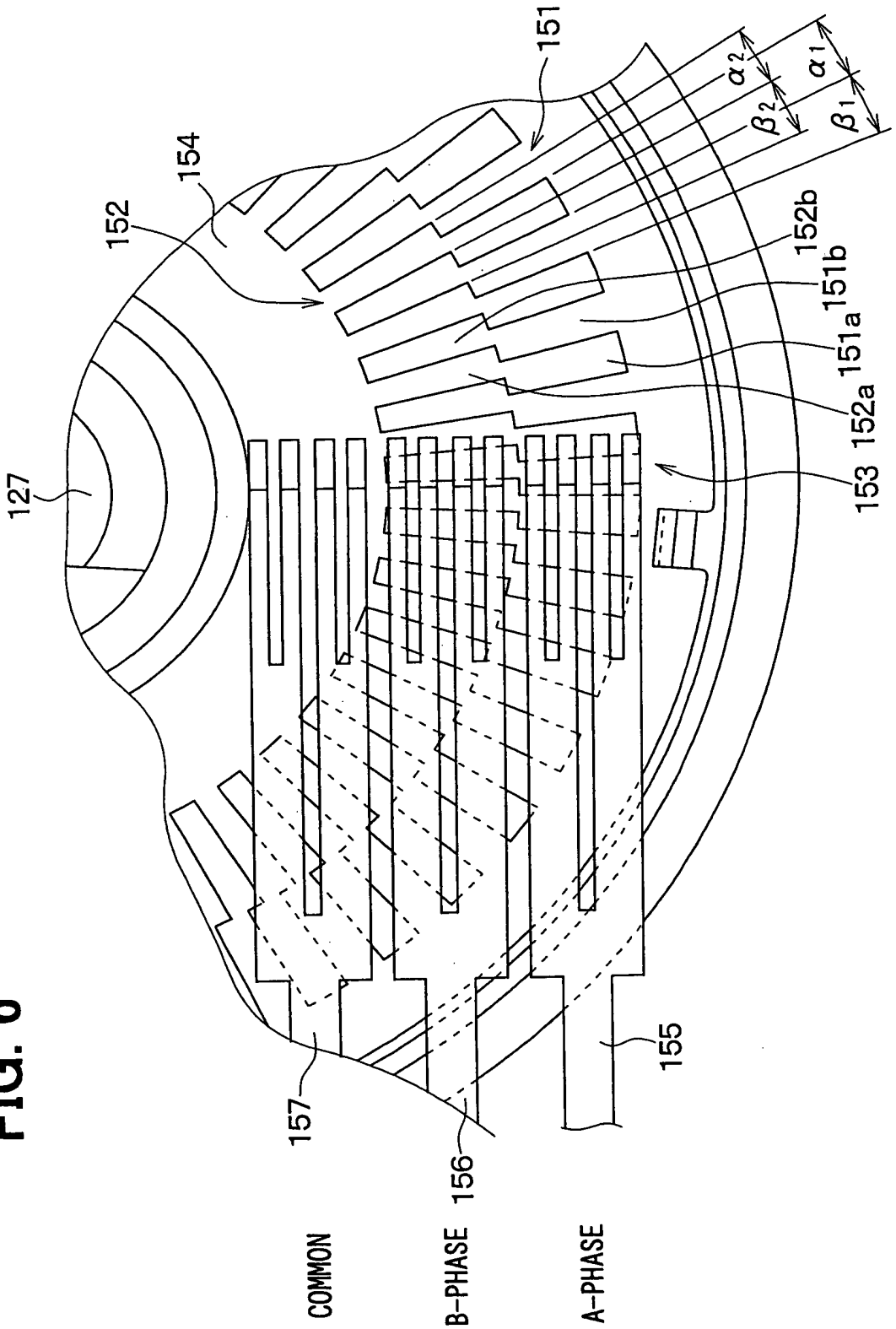

151
154
152
α2
α1
β2
β1
152b
151b
151a
152a
153
127
157
156
155
COMMON
B-PHASE
A-PHASE

FIG. 6

FIG. 7

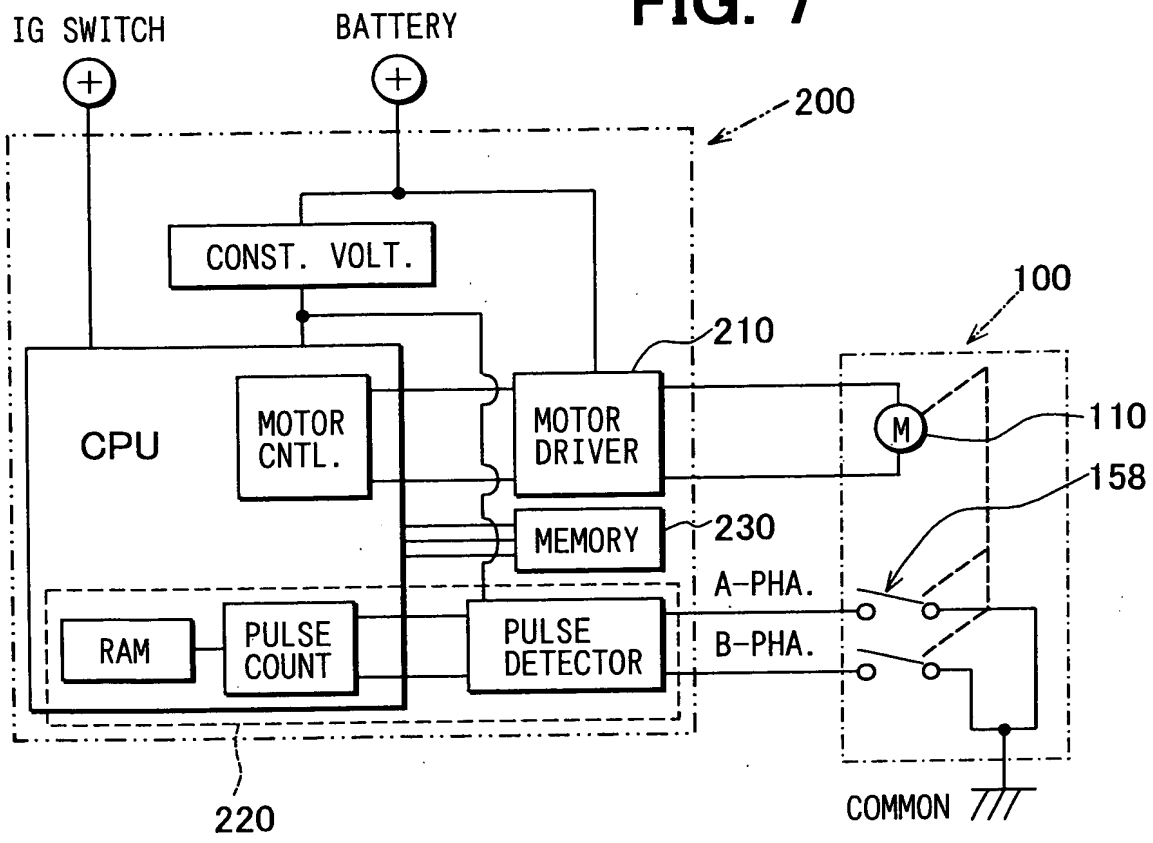

IG SWITCH
BATTERY
200
CONST. VOLT.
100
210
CPU
MOTOR CNTL.
MOTOR DRIVER
M
110
158
MEMORY
230
A-PHA.
RAM
PULSE COUNT
PULSE DETECTOR
B-PHA.
220
COMMON

FIG. 8

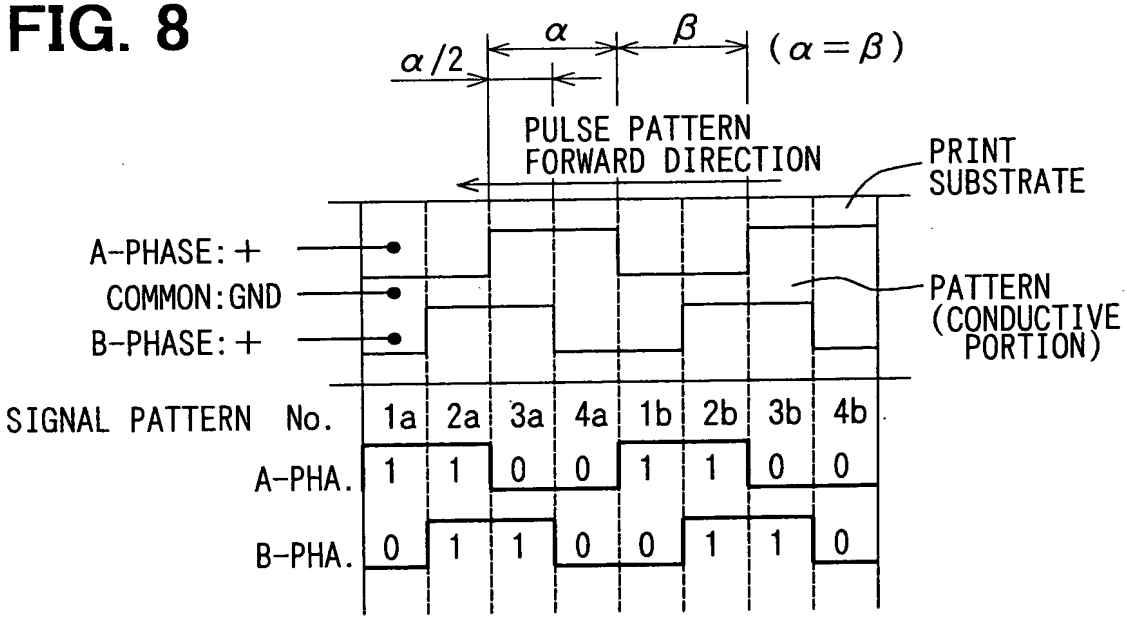

α/2
α
β
(α=β)
PULSE PATTERN FORWARD DIRECTION
PRINT SUBSTRATE
A-PHASE: +
COMMON: GND
B-PHASE: +
PATTERN (CONDUCTIVE PORTION)
SIGNAL PATTERN No.
1a 2a 3a 4a 1b 2b 3b 4b
A-PHA. 1 1 0 0 1 1 0 0
B-PHA. 0 1 1 0 0 1 1 0

FIG. 9

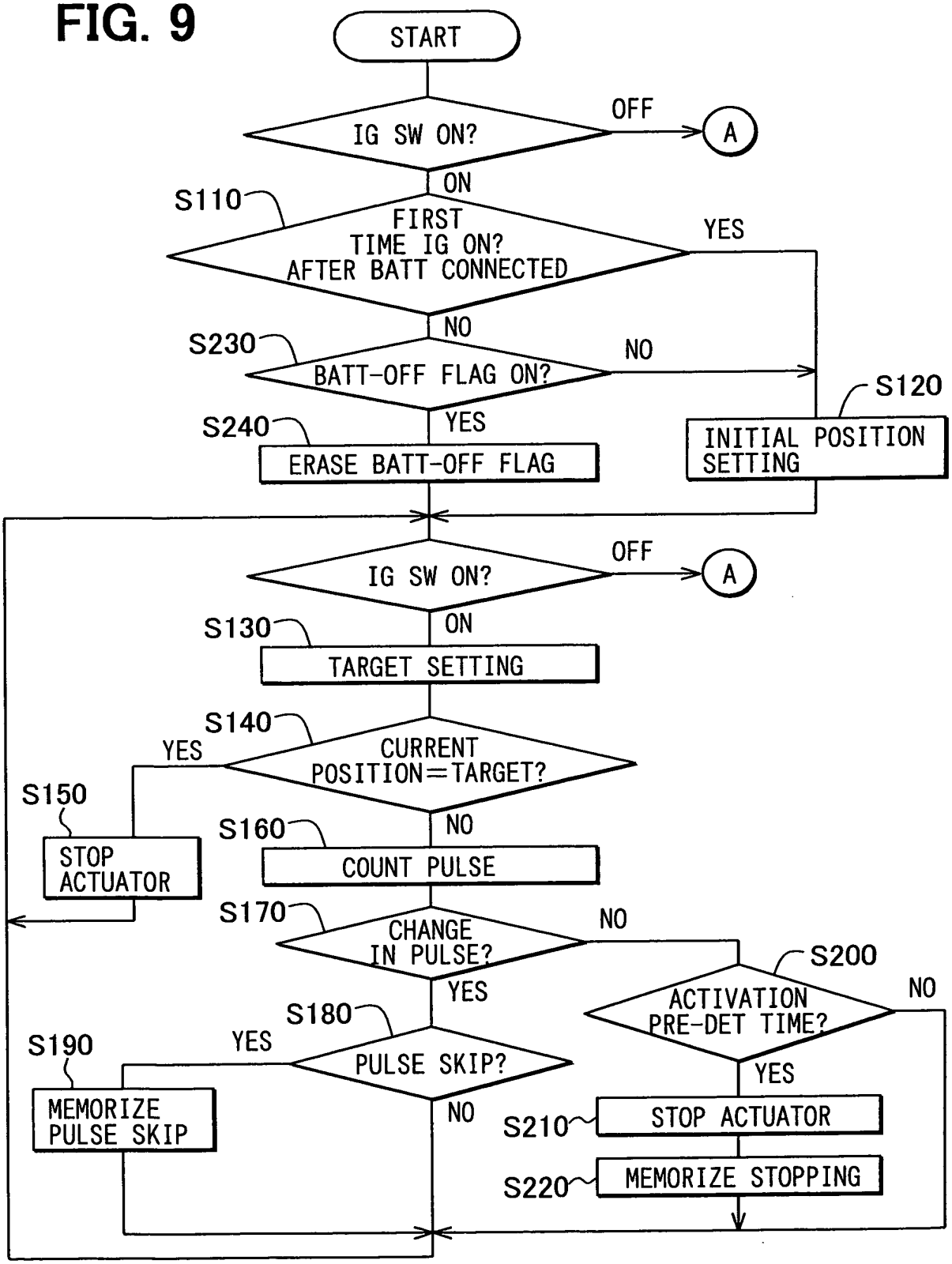

START
IG SW ON?
OFF
A
ON
S110
FIRST TIME IG ON? AFTER BATT CONNECTED
YES
NO
S230
BATT-OFF FLAG ON?
NO
S120
S240
YES
ERASE BATT-OFF FLAG
INITIAL POSITION SETTING
IG SW ON?
OFF
A
ON
S130
TARGET SETTING
S140
YES
CURRENT POSITION=TARGET?
S150
NO
S160
STOP ACTUATOR
COUNT PULSE
S170
CHANGE IN PULSE?
NO
S200
YES
ACTIVATION PRE-DET TIME?
NO
S180
S190
YES
PULSE SKIP?
YES
NO
MEMORIZE PULSE SKIP
S210
STOP ACTUATOR
S220
MEMORIZE STOPPING

FIG. 10

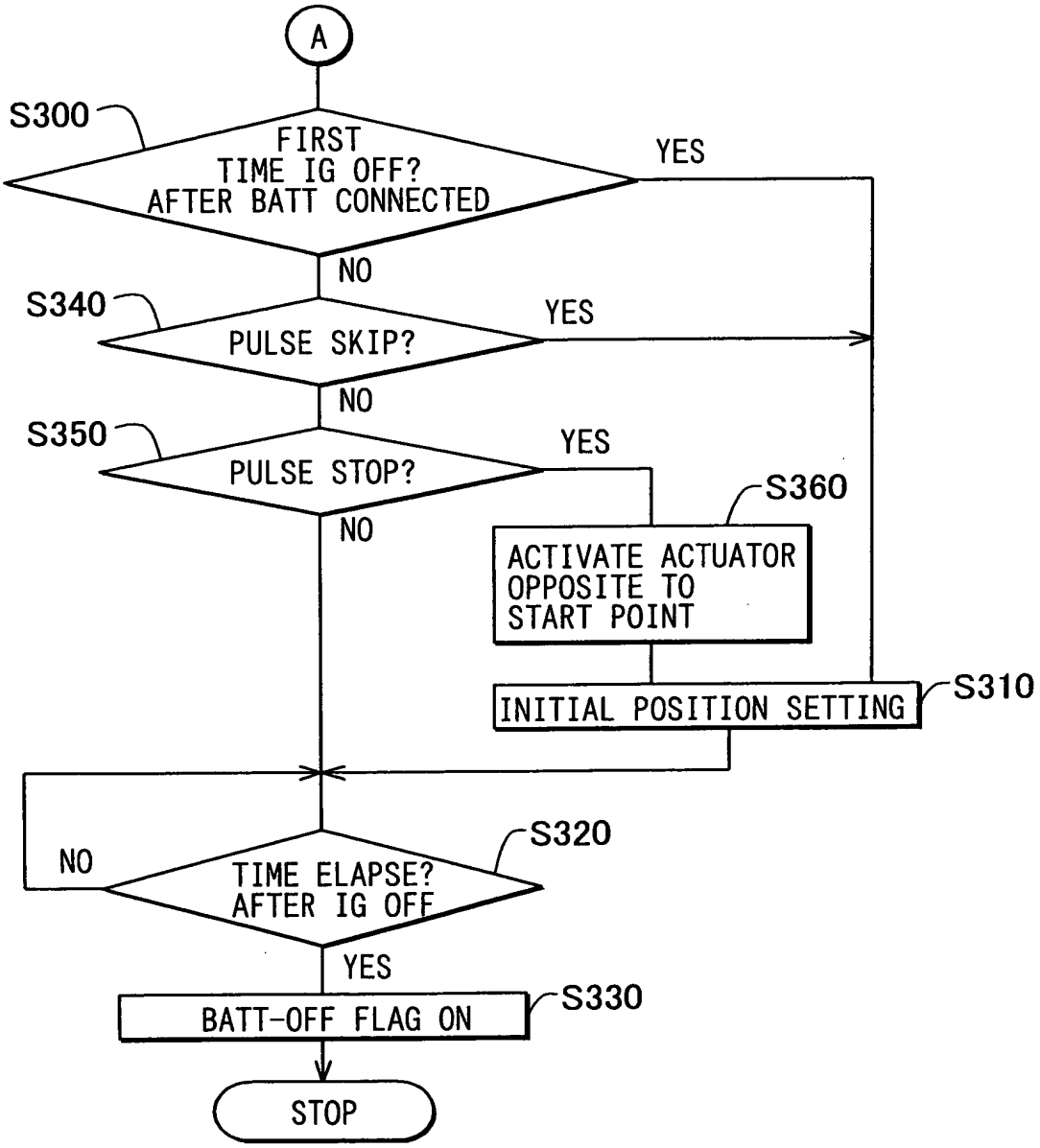

A
S300
FIRST TIME IG OFF? AFTER BATT CONNECTED
YES
NO
S340
PULSE SKIP?
YES
NO
S350
PULSE STOP?
YES
NO
S360
ACTIVATE ACTUATOR OPPOSITE TO START POINT
INITIAL POSITION SETTING
S310
S320
NO
TIME ELAPSE? AFTER IG OFF
YES
BATT-OFF FLAG ON
S330
STOP

FIG. 11

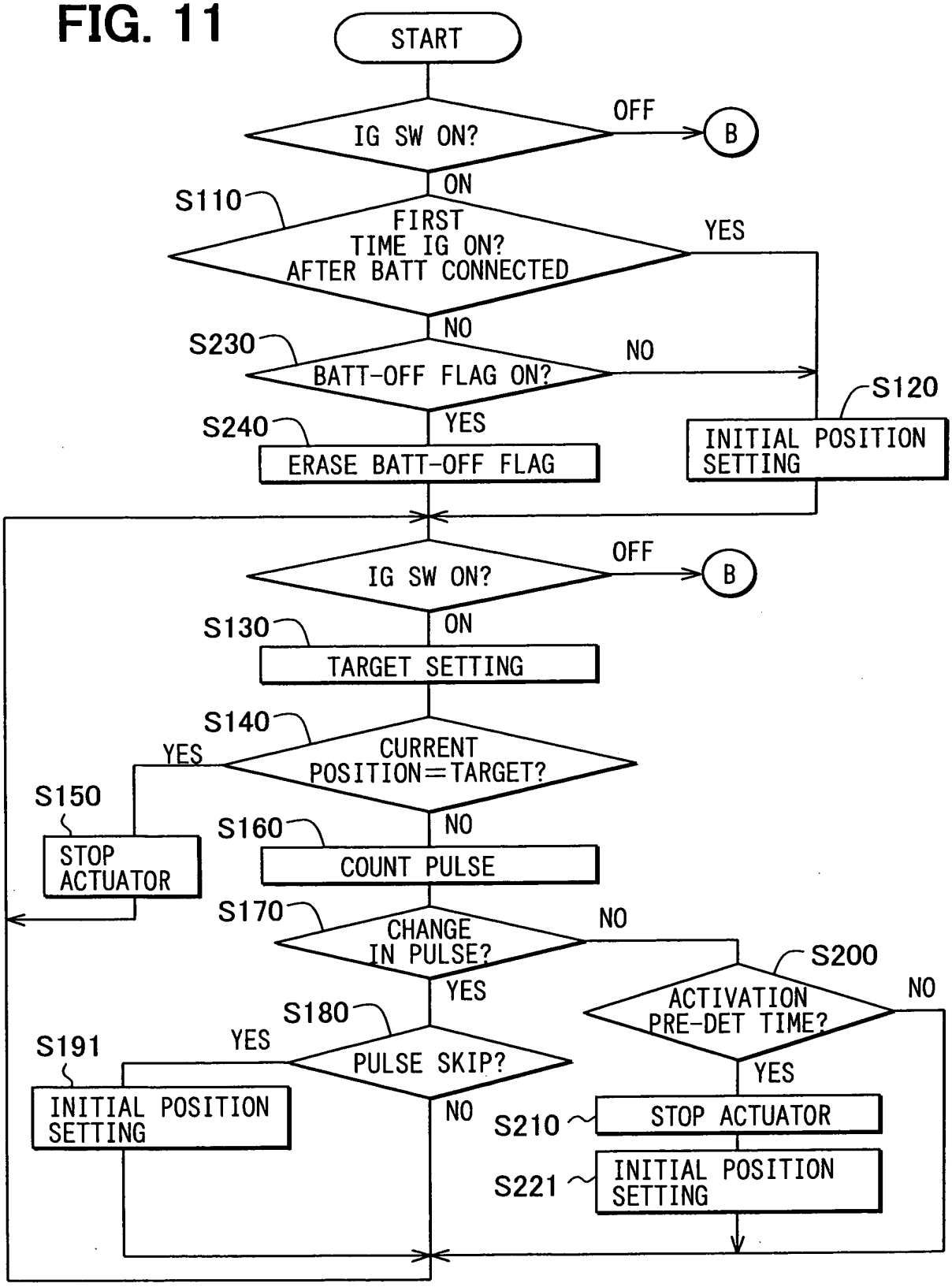

START
IG SW ON?
OFF
B
ON
S110
FIRST TIME IG ON? AFTER BATT CONNECTED
YES
NO
S230
BATT-OFF FLAG ON?
NO
S120
S240
YES
ERASE BATT-OFF FLAG
INITIAL POSITION SETTING
IG SW ON?
OFF
B
S130
ON
TARGET SETTING
S140
CURRENT POSITION=TARGET?
YES
S150
STOP ACTUATOR
NO
S160
COUNT PULSE
S170
CHANGE IN PULSE?
NO
S200
ACTIVATION PRE-DET TIME?
NO
YES
S180
PULSE SKIP?
YES
S191
INITIAL POSITION SETTING
NO
YES
S210
STOP ACTUATOR
S221
INITIAL POSITION SETTING

FIG. 12

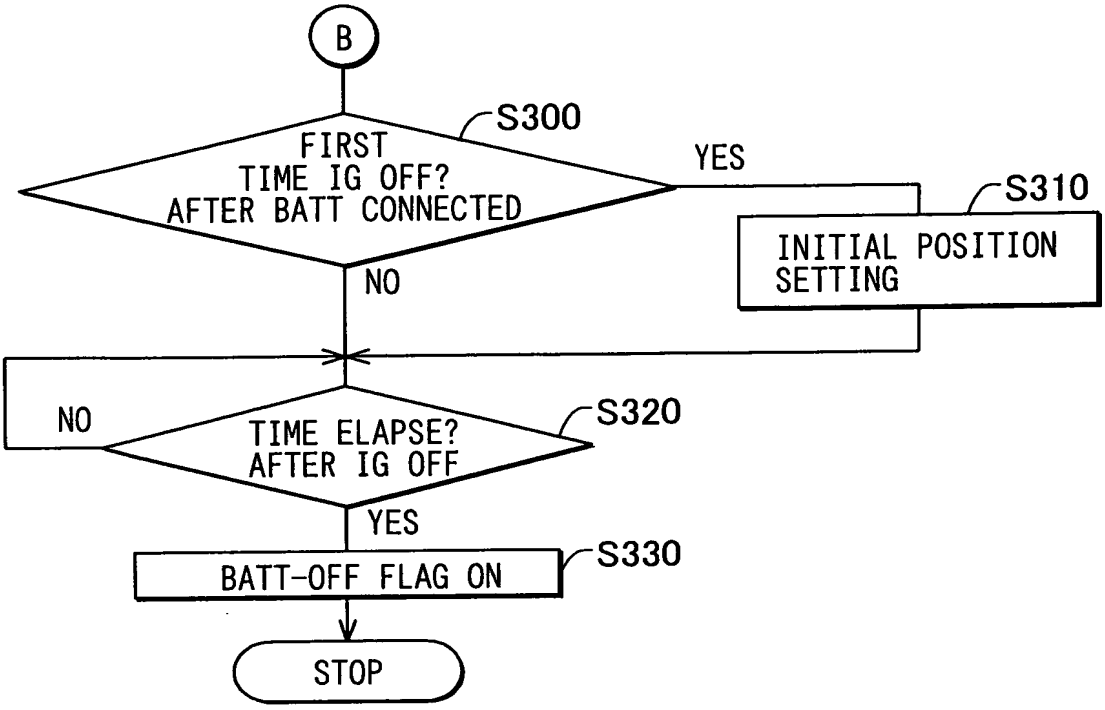

B
S300
FIRST
TIME IG OFF?
AFTER BATT CONNECTED
YES
S310
INITIAL POSITION
SETTING
NO
NO
TIME ELAPSE?
AFTER IG OFF
S320
YES
BATT-OFF FLAG ON
S330
STOP

FIG. 13

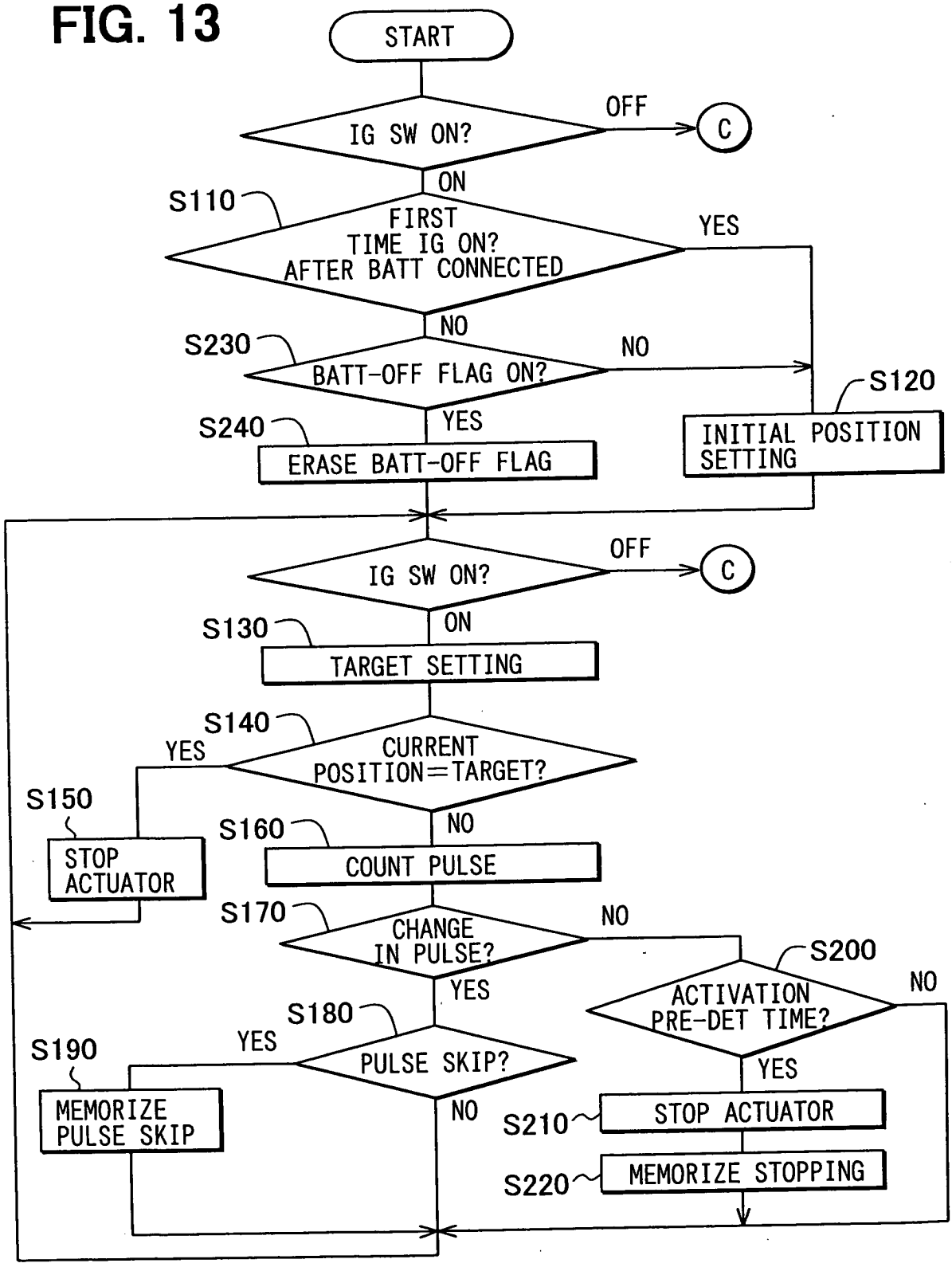

START
IG SW ON?
OFF
C
ON
S110
FIRST TIME IG ON? AFTER BATT CONNECTED
YES
NO
S230
BATT-OFF FLAG ON?
NO
S120
YES
S240
ERASE BATT-OFF FLAG
INITIAL POSITION SETTING
IG SW ON?
OFF
C
ON
S130
TARGET SETTING
S140
YES
CURRENT POSITION=TARGET?
S150
NO
S160
STOP ACTUATOR
COUNT PULSE
S170
CHANGE IN PULSE?
NO
S200
YES
ACTIVATION PRE-DET TIME?
NO
S180
YES
S190
PULSE SKIP?
YES
MEMORIZE PULSE SKIP
NO
S210
STOP ACTUATOR
S220
MEMORIZE STOPPING

FIG. 14

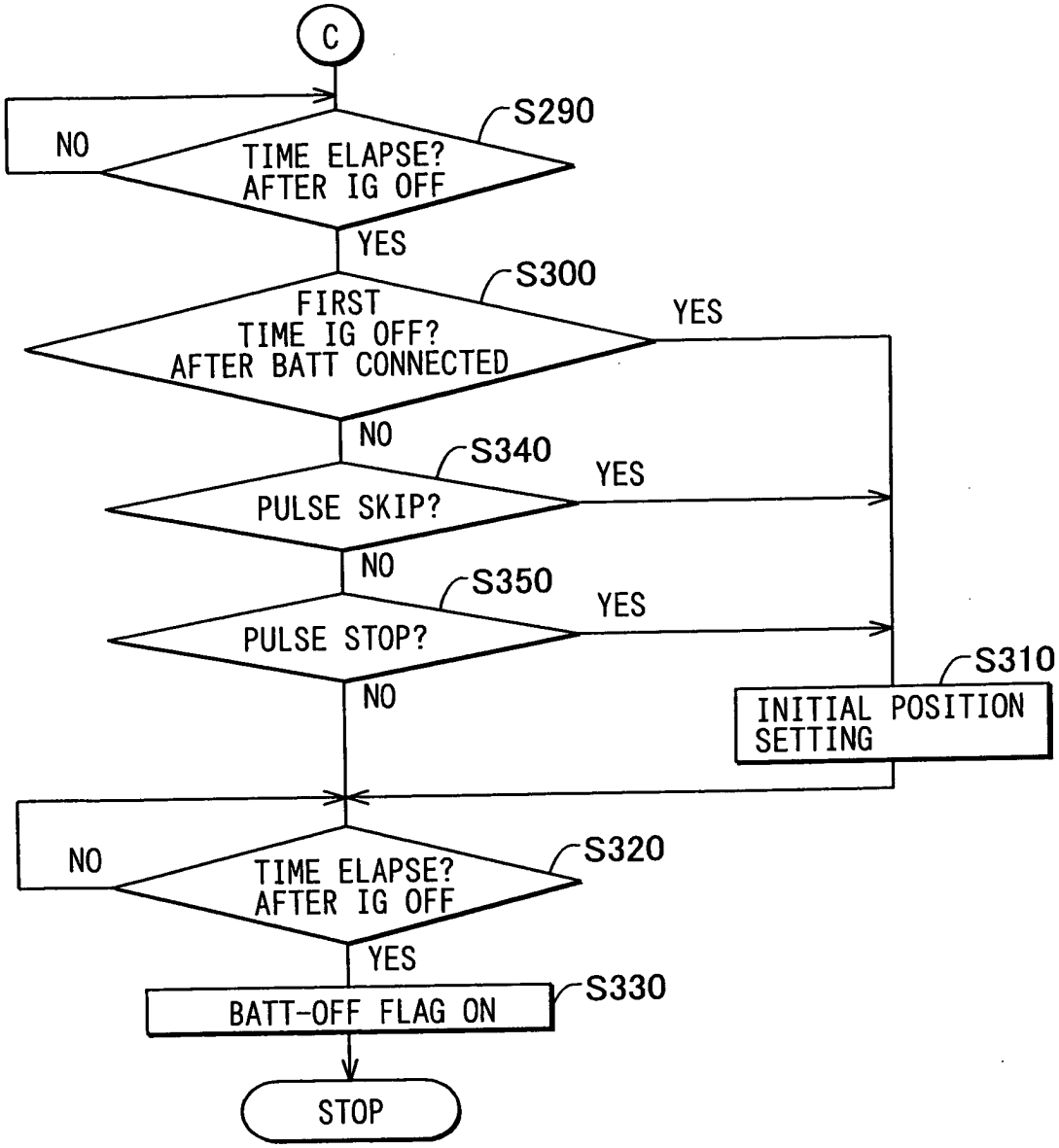
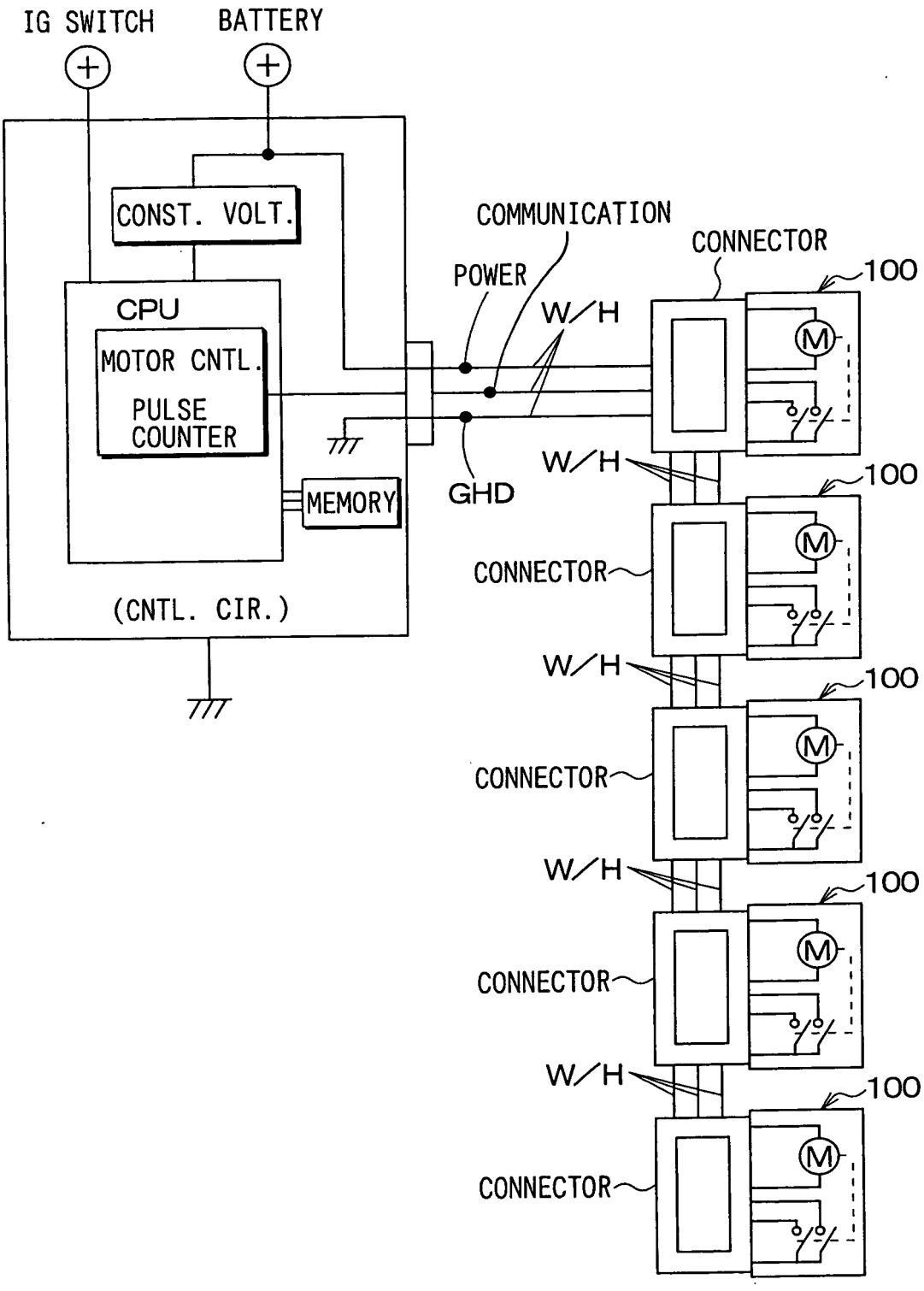

C
S290
NO
TIME ELAPSE?
AFTER IG OFF
YES
S300
FIRST
TIME IG OFF?
AFTER BATT CONNECTED
YES
NO
S340
PULSE SKIP?
YES
NO
S350
PULSE STOP?
YES
NO
S310
INITIAL POSITION
SETTING
NO
S320
TIME ELAPSE?
AFTER IG OFF
YES
S330
BATT-OFF FLAG ON
STOP

FIG. 15


IG SWITCH
BATTERY
CONST. VOLT.
CPU
MOTOR CNTL.
PULSE COUNTER
MEMORY
(CNTL. CIR.)
COMMUNICATION
POWER
W/H
GHD
CONNECTOR
100
M
W/H
CONNECTOR
100
M
W/H
CONNECTOR
100
M
W/H
CONNECTOR
100
M
W/H
CONNECTOR
100
M